

THE EFFECT OF MANAGEMENT INNOVATION ON PERFORMANCE OF CHINESE SMART HOME LISTED COMPANY

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ABSTRACT

With the development of science and technology, more and more emerging technologies appear to improve people's quality of life. Smart homes have also ushered in new opportunities. Many new technologies, such as big data, artificial intelligence, and 5G technology, have been integrated into smart home products. However, in the current changing environment, the role of management innovation needs to be played to strengthen and respond to the crises that may be encountered in the future. Based on the literature research, this paper makes a theoretical analysis of the impact of management innovation on the performance of smart home companies. In this study, the method of questionnaire survey is used to quantitatively analyze the impact of management innovation on the performance of my country's smart home listed companies. The sample includes 394 sales personnel and related management personnel of China's smart home listed companies. The study was conducted using the method of multiple linear regression. The results show that management innovation has a positive impact on the corporate performance of China's smart home listed companies. Management innovation can predict 39.4% of the factors affecting the performance of smart home companies, including the following aspects; The factors affecting company performance are marketing innovation (Beta=0.312), followed by product innovation (Beta=0.266), and finally organizational innovation (Beta=0.262).

Keyword: Management Innovation, Listed Companies, Company Performance

INTRODUCTION

1.1 Background of the study

Smart home is an industry that has only emerged in the past two decades in China. In the past, due to backward technology, there were few smart home products and consumer demand was low. But with the advancement of technology, more technologies have been added to the smart home, such as big data, artificial intelligence, cloud computing, VR, 5G and so on. Make smart home more convenient for people's life. Consumer demand for smart homes is also increasing. Guosheng Securities pointed out that the smart home industry is still facing the problem of difficult sales growth. In the future, smart home products should enter the consumer market to develop and sell products according to the needs of young people in small towns and other groups. At this time, product innovation and management innovation are also required.

With the continuous progress and development of the economy, innovation-driven has become a new model of economic growth, which is the result of the influence of the new era. The development model that continuously consumes resources and invests a lot of labor will also be eliminated. Under the conditions of the new economy, economic development and social progress are promoted through technological innovation and management innovation. The current smart home industry has undoubtedly achieved technological innovation. In just a few years, many popular and practical smart home products and smart home systems have been added. However, most companies pay attention to the development of technology and ignore management innovation. At the time of the outbreak of the epidemic in 2020, different smart home listed companies have had different impacts due to different response decisions. Management innovation is large-scale and systematic innovation, and it is an issue that requires optimization of production efficiency, organizational structure and management methods when an organization develops to a certain extent. Rather than wait until the environment changes unfavorably, it is not wise to cut the losses of the business through mass layoffs. Therefore, management innovation is necessary in enterprise development.

Theoretically, the management innovation of the enterprise will have a positive impact on the performance of the enterprise. Management innovation emphasizes improving operational efficiency within a company to improve organizational performance or provide support for technological innovation. Although some scholars have confirmed that management innovation can promote corporate performance in some industries, some scholars have shown that more investment in innovation may not necessarily increase corporate performance. (Wadho, W., 2018) For the smart home industry, few scholars have studied the impact of management innovation on the performance of smart home companies. Therefore, it is necessary to deeply study the impact of media company management innovation on company performance, and incorporate management innovation into the research scope of smart home operation management.

1.2 Research Objectives

Smart home is a technology industry, involving a variety of technologies, including the Internet of Things, artificial intelligence, big data, artificial intelligence, VR, cloud computing, AR, sensors, 5G, etc. are still at the forefront of technological development. In addition to improving corporate competitiveness and corporate performance through technological innovation, management innovation is also essential. Management innovation can make the company run more smoothly. Whether managerial innovation is also related to firm performance, and to what extent, has rarely been studied in the industry. Therefore, the purpose of this paper is to explore the impact of management innovation on the performance of listed smart home companies.

1.3 Research significance

1.3.1 Theoretical significance

As smart home companies continue to grow, so do public companies. More and more scholars have begun to study smart home listed companies as research. From the previous literature, it can be found that the impact of management innovation on enterprises has been studied by scholars. However, due to the complexity and abstraction of managing innovation, in fact, scholars have used a variety of methods to measure innovation management. Among them, some are conducted by means of questionnaires, and some are used to evaluate

management innovation by using specific financial report data, such as balance sheet, profit and loss statement, cash flow statement and other business management data. In addition, academic research on smart homes is mostly related to technology, marketing methods, and design, and there are few scholars in the field of research management innovation. Therefore, this paper will study the field of smart home management innovation, study the impact of management innovation on the performance of enterprises in the smart home industry, and focus on the management innovation level of listed smart home companies, which is also a further supplement to the research on the impact of management innovation on company performance.

1.3.2 Practical significance

Smart home listed companies are an important force in the smart home industry, and their operating performance can also see the development status and future prospects of the smart home industry, which is related to the improvement of people's quality of life. At present, smart home products are still in constant innovation, and the development of technology has brought more possibilities to smart homes. However, the emphasis on technology often ignores the emphasis on management. The wrong approach to managing innovation can also affect the growth of a company's performance. The research of this paper will make the managers of the company realize the impact of management innovation on the performance of the company, and improve the reference for the company's management decision-making and performance growth. At the same time, the research on smart home listed companies can be spread to the entire smart home industry, so that enterprises pay attention to management innovation, thereby improving the overall management level of smart home companies and making smart home companies develop better.

LITERATURE REVIEW

2.1 Concept of Smart home

Smart home is a system with a residence as a platform. It uses integrated wiring technology, network communication technology, security technology, automatic control technology, audio and video technology to integrate the facilities related to home life, and build efficient management of residential facilities and family schedule affairs. The system improves home safety, convenience, comfort, artistry, and realizes an environmentally friendly and energy-saving living environment. Intelligence is mainly reflected in the ability to complete tasks through voice control, remote control, and automation, and remotely view the status of smart devices through APP, or Automatically push early warning reminders, such as the lights in the home are not turned off for a long time, the door lock or the camera captures an abnormality and sends an anti-theft alarm. Smart homes can bring people a more comfortable and safer living environment. Owners can choose smart home devices that they think are practical according to the family situation, which can bring more convenience to life. (Qingyang Sun, 2021).

2.2 Concept of management innovation

2.2.1 Definition of management innovation

Management innovation is the concept of "innovation" first proposed by economist Joseph Schumpeter in 1912. Management innovation refers to the process by which an organization

forms a creative idea and converts it into a useful product, service, or method of operation. There are also scholars who study management innovation under certain external conditions. The volatility, uncertainty, complexity and ambiguity of an emerging market need to have new management innovation practice. The sensitivity of a company's response to the external environment depends on the practical effect of the company's management. In the practice of management innovation, the organizational, competitive, institutional and technological environment are very important. . (George, 2018)

Management innovation includes business models, organizational reengineering, new management methods and practices, etc. The purpose of management innovation is to improve the efficiency of management, optimize the structure, process, reduce costs, and improve the smoothness of organizational operations. Management innovation is different from technological innovation and is difficult to replicate. (He Qiao, 2018) It helps to enhance the competitive advantage, obtain more resources, and comprehensively differentiate technology and management innovation among enterprises. Adopted the definition of management innovation to produce new execution methods, respond to organizational strategy, structural change management and new process management procedures and systems" Therefore, replicating one management innovation is more difficult than other forms of innovation. (Robert, M., 2019)

2.2.2 Type of management innovation

a. Product Innovation

Product innovation refers to the introduction of new products into the market. This behavior is carried out according to the needs of the market and the needs of users. Product innovation includes product innovation and service innovation. (Zeplin, 2018)The production of new products takes a lot of time to be accepted by the market, so the impact of new product development on company performance cannot be seen in a short period of time. There is a significant improvement, and the same is true for the business practices corresponding to new products. New business models and business practices generated by new products are not judged whether they are good or bad because they cannot obtain effective benefits in the short term. (Eva Bucherer, 2012)

Different from new products, the practice of improving products can see the effect earlier than new products, which can generally be reflected through user feedback. (Eva Bucherer, 2012) If product innovation is combined with the product customer-oriented model, the product can produce long-term performance benefits. (Ivanka Visnjic, 2014) and management innovation affects the R&D efficiency of product innovation, and the relationship between R&D and management innovation is actively increasing in companies with a higher level of management innovation. (Cornelis V. Heij, 2019)

b. Marketing innovation

Marketing innovation is the change in the implementation of new marketing strategies involving products (services), distribution, promotion or pricing, and it is also what we often call new marketing mix strategies. However, some scholars have found that there are more opportunities in the market at present, and more and more companies have considered more aspects in marketing innovation. Such as developing new distribution channels, establishing new brand strategies, adding new communication channels, formulating new pricing mechanisms and so on. These are all innovative approaches to digital marketing in the new era,

as new key drivers to reach and reach more consumers. At the same time, marketing innovation is often associated with consumer satisfaction. Help the company to better carry out marketing innovation through consumer feedback. (Sharon Purchase, 2020)

In a highly competitive market environment among companies, marketing innovation is one of the contributions to improving competitiveness. Marketing innovation can be coming up with new ideas, such as integrating marketing, distribution and sales theory, or using new marketing mixes, such as developing new services, creating new distribution channels, or discovering new marketing methods. In addition to this, it can also be linked with market research, pricing strategies, market segmentation, advertising channels, retail channels, and marketing systems. (Gupta, 2016)

Marketing innovation can be the use of new marketing methods, including packaging design, promotion and market pricing. Specifically, the design of the packaging does not change the function of the product, and the 4P strategy of the marketing mix also does not change the function of the product. In fact, marketing innovation can increase the company's value through the company's innovation strategy. Marketing innovation can increase profits by creating a new market or customer group, and marketing innovation can also reduce the uncertainty brought about by new markets to better sell goods. (Tang, 2021) In marketing innovation, a large number of literatures refer to various aspects including 4P, and 4P marketing mix has also been accepted by many scholars as the main content of marketing innovation, that is, the implementation of new marketing time, the products or services involved. Significant changes in design, packaging, channels, promotions, etc. (Buddhi Pathak, 2022)

c. Organizational innovation

If the environment in which the company operates is more and more dynamic, it needs to change through organizational change, and then innovation is required. This is an increasingly important element for companies, and from the Oslo Manual (OECD) Organizational Innovation is defined as "the implementation of a new method of organization in a company's business practices, workplace organization or external relations". Such a definition allows us to make a better classification of organizational innovation. (Alves, 2018)

When taking organizational innovation as a variable, some scholars ask questions separately from organizational innovation and process innovation, and regard new management systems, new business practices, updating organizational structures, assigning responsibilities and decision-making, and more detailed external relationships as the content of organizational innovation. . (Rajapathirana, 2018)

Studies have shown that organizational innovation has a positive impact on employee performance. The productivity of employees depends on the responsibilities they perform. When the goals and objectives of the company change, the functions of employees and the purpose of work may also need to change, that is, the organizational structure. The purpose of organizational innovation is to increase the efficiency with which employees perform their duties, as changes in company goals may reduce employee productivity. (Busaibe, 2017)

2.2.3 Benefits of management innovation

Management innovation has a positive impact on organizational renewal and performance improvement. If management innovation is not fully utilized, it will have a negative impact on the implementation of management innovation in the company five years later. Quality management practices can improve a company's ability to innovate, which in turn has a positive

impact on company performance. By continuously optimizing the structure of a more efficient organization and the practice of improving the quality of the labor force, better management innovation and a positive impact on organizational performance can be achieved. (Honyenuga, 2019)

The relationship between management innovation and organizational performance is often related to efficient structure, and efficient organizational performance will have a positive impact on company performance. Advanced management processes cannot guarantee good organizational performance, and require multiple aspects to work together to achieve it. The improvement of the company's performance is not achieved by adding management innovation alone, but the factors that improve the organization's performance and thus the company's performance. (Sciarelli, 2020)

Management innovation is a new management practice to improve company performance. It is defined as "the generation and implementation of management practices, processes, structures or techniques designed to further achieve organizational goals". Management innovation has a positive impact not only on organizational efficiency and business performance, but also on business legitimacy. (Wei, Z., 2019) The survival and development of enterprises are inseparable from enterprise innovation. Through innovation, more resources are obtained and ultimately transformed into enterprise performance. Obtaining higher enterprise performance is also the ultimate goal of enterprise management. (Zhang, Y., 2019)

2.3 Concept of Company Performance

Enterprise performance refers to the operating efficiency of the enterprise and the performance of the operator during a certain period of operation. The level of business efficiency is mainly reflected in profitability, asset operation level, debt repayment ability and follow-up development ability. Business performance includes both operations and finance, and it is a part of organizational efficiency. Organizational performance includes two parts: business performance and financial performance. The company's performance is affected by many aspects. From the perspective of internal factors, changes in the company's management methods, changes in accounting rules, development of new materials, expansion and reduction of company scale and other factors will affect the company's performance. Therefore, it is particularly important to study the relevant factors that affect the company's performance to improve the company's performance. (Ludmila Kasperovica, 2021)

Companies are also pursuing maximization of performance, which also includes maximization of profits. Profit maximization refers to a company's ability to maximize profits by using resources more efficiently to increase revenue. The company initially supported only one main factor for profit maximization: revenue growth as a determinant and achieving an increase in turnover. (Sciarelli, 2020)

2.4 Conceptual Framework

Based on the above theoretical basis and the discussion of domestic and foreign literature, I have a more in-depth understanding of the research on management innovation and corporate performance. This research logically infers a new method. Therefore, this research draws on the research models of Jayani Rajapathirana, these models are involved in management innovation and company performance, and can be applied to the smart home industry.

The theoretical model framework of this study is obtained, as shown in Figure 2.1 below:

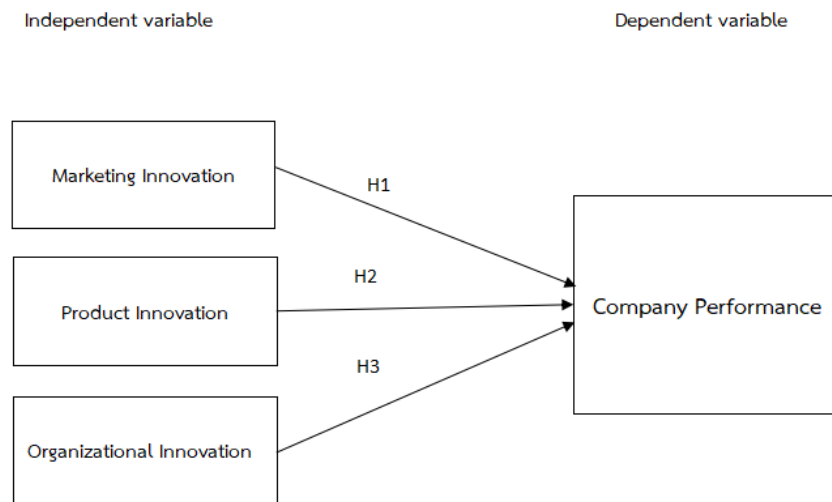


Figure 2.1 Conceptual Framework

RESEARCH METHODOLOGY

The research adopts the method of questionnaire survey to collect data for quantitative analysis. The analysis adopts the method of multiple linear regression to explore the impact of management innovation on the performance of China's smart home listed companies. The subjects of this study are 394 people, and the scope of the survey is the sales staff and related management personnel of China's smart home listed companies. The research data has passed the reliability analysis, and the reliability coefficient is greater than 0.9, indicating that the reliability of the scale is very good and can be studied.

RESEARCH RESULT

4.1 Questionnaire Variable Statistics

Table 4.1 Management innovation factors are used to explore the impact on firm performance

Variable	n	Mean	S.D.	result
Marketing innovation				
1.The company uses new product strategy to boost sales	394	3.76	1.049	high
2.The company will adopt new pricing strategies to increase sales	394	3.56	1.09	high
3.The company will establish new channels to expand sales	394	3.66	1.037	high
4.The company uses new promotion to boost sales	394	3.93	0.984	high
5.The company use new media	394	3.86	0.994	high

promotion methods to drive more sales

Product innovation				
6.Developing new products can open up new markets for the company	394	3.64	1.135	high
7.Adding new value to a product can improve consumer satisfaction	394	3.49	1.208	high
8.Standardizing product technical standards can lead to better sales	394	3.56	1.21	high
9.Continuous product improvement increases user satisfaction	394	3.76	1.131	high
10.Improving the trial experience of a product can increase consumers' willingness to buy	394	3.69	1.202	high
Organization innovation				
11.The company will regularly adjust the rules and procedures of doing things to improve work efficiency	394	3.93	1.025	high
12.The company will regularly improve management methods to improve work efficiency	394	3.74	1.091	high
13.The company regularly proposes new business practices to open up the market	394	3.84	1.071	high
14.The company regularly conducts employee training to improve business capabilities	394	4.12	0.983	high
15.The company will update the organizational structure according to external changes to operate better	394	4.04	0.996	high
Company performance				
16.Increasing product sales can improve the company's performance.	394	4.05	1.025	high
17.Increased consumer satisfaction can improve company performance	394	3.92	1.051	high
18.Opening up new markets can improve the company's performance.	394	3.99	1.039	high
19.Improving team capabilities can increase business profits	394	4.2	0.945	high
20.Improving employee business ability can increase market share	394	4.13	1	high
Total	394	3.83	1.066	high

It can be seen from Table 4.1 that the scores of the questionnaires are all at a relatively high level, among which the average score of product innovation is 3.628, that of marketing

innovation is 3.754, that of organizational innovation is 3.772, and the total average score is 3.83.

4.2 Regression Analysis

The data is processed by multiple linear regression through computer software, and the results are as follows:

The model summary table is Table 4.2. The predictors in the table are PI, MI and OI. , that is, product innovation, marketing innovation and organizational innovation can reflect 39.4 percent of changes in company performance. Variable company performance is affected by 39.4 percent of three variables.

Table 4.2 Model summary for multiple predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627 ^a	.394	.389	.62628

a. Predictors: (Constant), OI, PI, MI

b. Dependent Variable: Y

Table 4.3 is the ANOVA, which examines the significance of the regression model, that is, whether the existence of the regression model is meaningful. If none of the independent variables can significantly affect the dependent variable, it means that the existence of a regression model is meaningless. The results in the table show that $F=88.901$, $p=0.000<0.05$, indicating that the regression model is significant, that is, the regression model is meaningful, and at least one independent variable of the three variables in the model can significantly affect the dependent variable.

Table 4.3 ANOVA with three variables

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	104.608	3	34.869	88.901	.000 ^b
	Residual	161.205	411	.392		
	Total	265.812	414			

a. Dependent Variable: Y

b. Predictors: (Constant), OI, PI, MI

Table 4.4 is the linear regression equation coefficient table, which expresses the influence of each variable on the company's performance. It can be seen from the table that the

significance p of the three variables is less than 0.05, which means that the three variables can significantly affect the dependent variable. According to the coefficients, it can be seen that the PI coefficient is $0.303 > 0$, which means that product innovation will increase by 1, which will directly lead to a 0.303 improvement in company performance. The MI coefficient is $0.218 > 0$, which means that marketing innovation will increase by 1, which will directly lead to a company performance improvement of 0.218; OI coefficient is $0.255 > 0$, it means that the improvement of organizational innovation by 1 will directly lead to the improvement of company performance by 0.255. To sum up, the three variables are all significantly positive dependent variables.

Table 4.4 Multiple Linear Regression Equation

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
1	(Constant)	1.128	.185		6.098	.000		
	PI	.303	.040	.312	7.512	.000	.853	1.172
	MI	.218	.035	.266	6.221	.000	.807	1.240
	OI	.255	.041	.262	6.180	.000	.824	1.214

a. Dependent Variable: y

CONCLUSION

Management innovation is the choice to achieve the healthy development of the smart home industry. On the basis of literature research, this paper makes a theoretical analysis of the management innovation theory and company performance and the relationship between them. To explore the impact of management innovation on the performance of Chinese smart home listed companies. It was finally confirmed that all three hypotheses were established, and management innovation had a positive impact on the performance of Chinese smart home listed companies. The results show that management innovation can predict 39.4 percent of the factors affecting the performance of smart home companies, including the following aspects; the factors affecting company performance are marketing innovation (Beta=0.312), followed by product innovation (Beta=0.266), and finally organization innovation (Beta=0.262).

The experimental results were as expected, but different. It can be seen from the literature that marketing innovations have a positive impact on the improvement of product sales, thereby improving the performance of the company, but when this study focuses on the smart home industry, its impact is relatively small. With reference to Chinese literature and the background of the smart home industry, according to the conditions of the questionnaire data, we know that the current focus of smart home business performance improvement is not marketing innovation, but organizational innovation. The experimental results are consistent with

expectations. According to the reference of the literature, it is proved that the marketing innovation in the smart home industry has a positive impact on the improvement of product sales, thereby improving the company's performance. With reference to the Chinese literature and the background of the smart home industry, according to the conditions of the questionnaire data, we know that the current smart home The focus of improving the performance of home furnishing enterprises is not only marketing innovation, but also product innovation and organizational innovation. Product innovation is a necessary part of a tech company. In the face of the turbulent external environment, especially affected by the epidemic, many companies have begun to optimize the adjustment of their organizational structure, and the focus of organizational innovation to join the company is already required by the situation.

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